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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,168	01/20/2004	Anthony K. Dunhill	118286	3263

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EXAMINER	
SAINT SURIN, JACQUES M	
ART UNIT	**PAPER NUMBER**
2856	

DATE MAILED: 08/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/759,168	DUNHILL, ANTHONY K.	
	Examiner	Art Unit	
	Jacques M. Saint-Surin	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *01/20/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim

Claim 10 recites an apparatus or a method which renders the claim indefinite because the statutory class is not defined. The claim further refers to figures of drawings without describing or reciting the elements. Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Lerch (US Patent 4,635,484).

Regarding claim 1, Lerch discloses an ultrasonic transducer structure (ultrasonic tranducer system of Fig. 1), comprising a first ultrasonic transducer element (4), arranged and operable for transmitting an ultrasonic signal from a front face of the structure, damping material (18 or material of high mechanical damping, see: col. 3, line 22) at the back of the first ultrasonic transducer element (4), and a second ultrasonic transducer element (6) in or on the damping material (18) behind the first ultrasonic

transducer element (4), arranged and operable to receive sound energy propagated through the damping material (18) when the first ultrasonic transducer element (4) is operated to transmit an ultrasonic signal from the front face.

Regarding claims 2-3, Lerch discloses a plurality of first transducer elements (transmitting layers 8 and 9), a damping material (18 or material of high mechanical impedance) and a plurality of second ultrasonic transducer elements (10, 11, 12 and 13).

Regarding claims 4-5, Lerch discloses one of the to matching layers 12 and 13 of the ultrasonic transducers 4 and 6 may be adapted to service simultaneously as the receiving layer, see: col. 4, lines 59-61. Lerch further discloses the polyvinylidine fluoride PVDF must be polarized and equipped with electrical connections, see: col. 4, lines 64-67.

Regarding claim 6, Lerch discloses the respective mid frequency selected for the ultrasonic transducers 4 and 6 may be 4 MHz for the transducer 4 and 2 MHz for the transducer 6. Therefore, the frequency range is 2 to 4 MHz, which clearly meets the limitation of the frequency range 2 to 3 MHz.

4. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Jackson (GB Patent 2201318).

Regarding claim 1, Jackson discloses an ultrasonic transducer structure (electromechanical transducer of Fig. 1), comprising a first ultrasonic transducer element (piezoelectric material 3), arranged and operable for transmitting an ultrasonic signal from a front face of the structure, damping material (filled epoxy matching

elements 7) at the back of the first ultrasonic transducer element (3), and a second ultrasonic transducer element (4) in or on the damping material (7) behind the first ultrasonic transducer element (3), arranged and operable to receive sound energy propagated through the damping material (7) when the first ultrasonic transducer element (4) is operated to transmit an ultrasonic signal from the front face.

Regarding claims 2-3, Jackson discloses the members 3 and 4 are arranged in a stack with a plurality of matching elements 7 formed of filled epoxy material, there being a single element 7 on one side of the element 2 and serving to mount the transducer on support surface 8 and two elements7 on the other side of the element 2.

Regarding claim 4, Jackson discloses such settings of the transducers is generally carried out using a detector arranged to receive the output of the transducer array, each transducer in the array being operated individually and its output determined with the detector.

Regarding claim 5, Jackson discloses the piezoelectric material used is preferably a plastics material, for example polyvinylene difluoride (PVFD), see: col. 2, lines 22-25.

Regarding claims 7-9, as discussed above, they are rejected for the reasons set forth for claim 1. Furthermore, Jackson discloses the layer 9 is responsive to oscillation of the body 1 caused by the element 2 and provides an output electric signal between its electrode 10 and 11 indicative of the output of the transducer. This output signal is supplied as a feedback signal to the energizing circuit 100 for the transducer where it is

used to control energization of the transducer in order to obtain a required output, see: col. 3, lines 26-36.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Adachi et al. (US Patent 6,443,900).

Regarding claim 1, Adachi discloses transmitting piezoelectric resonator (102), receiving piezoelectric resonator (104) and damping layer (112).

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M. Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Mondays through Fridays 10:30 A.M. -7:00 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272 2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jacques M. Saint-Surin
August 05, 2005

HEZRON WILLIAMS
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